PSM / PTA EVALUATION WEB MANAGEMENT SYSTEM

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ABSTRACT

Currently, PSM/PTA evaluation management in FSKKP is done manually. As been accepted by the world wide, web-based management system is being used to ease the management process. This project was done to overcome the problem of PSM/PTA evaluation manual management process. PSM/PTA Evaluation Web Management System is web based system that design to manage PSM/PTA management process. This system includes three modules which are of users, student, lecturer, and coordinator. This project use Modified Waterfall Model methodology to implement the development process. PHP and MySQL have been be used as programming language and database respectively for project development. In this project, using web-based will increase the efficiency and reduce human workload in PSM/PTA. This system was tested with unit testing, functionality testing, and user acceptance test. The results show the functionality of the system is passed which users satisfy with the system.

ABSTRAK

Sehingga kini, di FSKKP pengurusan PSM/PTA dilakukan secara manual. Seluruh dunia mengakui bahawa tujuan sistem pengurusan berasaskan web digunakan adalah untuk memudahkan proses pengurusan. Projek ini bertujuan untuk menangani proses pengurusan penilaian PSM/PTA yang secara lazimnya dijalankan secara manual. Sistem Web Penilaian Pengurusan PSM/PTA yang dihasilkan adalah untuk menguruskan proses penilaian PSM/PTA. Sistem ini mempunyai tiga modul pengguna berbeza iaitu pelajar, pensyarah dengan penyelaras. Projek ini menggunakan metodologi Modified Waterfall Model untuk melaksanakan proses pembangunan. PHP dan MySQL telah digunakan sebagai bahasa pengatucaraan dan pangkalan data masing-masing bagi pembangunan projek. Dengan menggunakan system berasakan web dalam projek ini, ia akan meningkatkan kecekapan serta mengurangkan beban kerja manusia dalam menguruskan PSM/PTA. Sistem ini telah diuji untuk mengenalpasti kelancaran fungsian sistem dapat memudahkan proses pengurusan manual dengan benamkan aplikasi bijak. Keputusan menunjukkan kebolehfungsian sistem dan kepuasan kepada pengguna sistem ini.

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LIST OF ABBREVIATIONS

ABBREVIATION	TITLE
CSS	Cascading Style Sheets
FSKKP	Fakulti Sistem Komputer & Kejuteraan Perisian
FTP	File Transfer Protocol
FYP	Final Year Project
GUI	Graphical User Interface
HTML	Hypertext Transfer Markup Language
HTTP	Hypertext Transfer Protocol
HTTPS	Hypertext Transfer Protocol Secure
IP	Internet Protocol
JSP	JavaServer Pages
MySQL	My Structured Query Language
PEMS	PSM / PTA Evaluation Web Management System
PHP	Hypertext Preprocessor
PSM	Projek Sarjana Muda
PTA	Projek Tahun Akhir
RAM	Random Access Memory
RDBMS	Relational Database Management System
SFTP	Secure File Transfer Protocol
SQL	Structured Query Language
SRS	Software Requirements Specifications
TCP	Transmission Control Protocol
URD	User Requirement Document
XML	eXtensible markup Language

PART I

INTRODUCTION

1.1 Research Background

The Internet is an ideal vehicle for integrating and publishing information over a network of participating groups and organizations. With the rapid growth of websites on the Internet, there is much useful information in terms of millions that available through the web. People these days can get information easily and freely on numerous devices (Bookmarks sharing and management system, 2012). The use of the web-based system has become popular recent years. Web-based management system is used to control dynamic collection of web materials such as HTML documents and images (Wikipedia, 2012).

A management system is a proven framework for managing and continually improving your organization's policies, procedures and processes. A management system helps an organization to achieve these goals through a number of strategies, including process optimization, management focus and disciplined management thinking (British Standards Institution, 2012). Web-based management system represents the excellent example of managing the online transactional process in order to get better achievement of the working process. The used of the web-based management system makes the data online. By using the web-based or computerize the management system, there is much more flexible in handle the data. Users can access to a wider variety of existing information, anytime, and from anywhere with quick and consume less time (TCMS, 2007).

Currently, in PSM/PTA manual process, student submits hardcopy or filled application form to the PSM/PTA coordinator. In addition, there will be difficulties for PSM/PTA coordinator on searching and storing the proposal of student’s title, this will

lead to data integrity and require larger space to keep student's hardcopy proposals. Furthermore, the manual process difficult to keep track of weekly activities between students and supervisors. Besides that, evaluators faced problem in sending marks to PSM coordinator as the marks given will be recorded in the given form. A web-based management system for PSM/PTA management should be developed to overcome the problem faced by the manual process. Proposed online system will ease the manual process.

1.2 Problem Statement

In addition, during supervision phase, students have to organize meeting with their supervisor to show their weekly process on the project. Log book is compulsory to record all the general meetings between students and supervisors. Sometimes students fail to organize the meeting as the supervisor may not around so that they cannot review their weekly work with their supervisor. As a result, they cannot do corrections on their works to be submitted and will get lower marks for their project.

Finally, on evaluation phase, all the evaluator will give marks to students based on their presentation. All marks will be recorded in form provided; this process requires a lot of man power and there is also no privilege on student's personal information such as given marks if occur missing of data. Besides that, after recording marks, all evaluators are responsible to key in the marks into excel format and email to the PSM/PTA coordinator. This process occurs a lot of difficulties such as missing of student's form, late sending of marks from an evaluator to PSM coordinator and typing error when the coordinator input data to computer.

1.3 Main Aims and Objectives

The objectives of the project are:

1. To develop a web-based system that contains final year project students' information based on user modules, which emphasize the evaluation process.
2. To embed the smart application in the system where the system can generate weekly activities done by students and can accept an excel file in .xls format.
3. To test the functionality of the system where the system will be tested to PSM students.

1.4 Scope and Limitation

This project will be developed using a web-based framework for management on PSM, which based on user modules, which consists:

1. Lecturer module
2. Coordinator module
3. Student module

The uses of software and hardware:

1. Software:
    - PHP languages
    - Apache
    - MySQL Database
    - Adobe Dreamweaver CS5
2. Hardware:
    - Laptop
    - FSKKP web server

Users or respondents:

1. Undergraduate students
2. Lecturer
3. PSM coordinator

1.5 Existing System

In earlier computing models, users need to install an application to their personal computer as every application had their own client program served as its user interface. An application, when upgrading of server-side code, typically require an upgrade to client-side code installed on each user's workstation, increasing support cost and decreasing productivity. In contrast, web applications use web documents written in a standard format such as HTML and JavaScript, which are supported by a variety of web browsers. Web applications serve as specific variant of client-server software where relevant web page or client software is downloaded to the client machine when client visiting the site, using standard procedures such as HTTP. Each time when a web page

is visited there will be happened an update in client side software. Web application is an application that is accessed by users over a network such as the Internet or an intranet. The key reasons of web applications become popular is its ability to update and maintain without installing and updating software on client computers; the inherit support for cross-platform compatibility (Web application, 2012).

There are some existing systems that use web-based application to manage their system:

1. The Design and Implementation of Online Management System for Undergraduates' Thesis (Project)
2. Nanyang Technological University Final Year Project Portal
3. Web-Based Evaluation for Online Courses and Learning Management System
4. Online Document Management System for Academic Institutes
5. System Development of FYP Portal (Registration Module)

Table 1.5 – Comparison on existing system

Existing System	Respondent	Software/ Technique/ Platform	Result
The Design and Implementation of Online Management System for Undergraduates' Thesis (Project)	System administrators, teachers, students and auditors	Web development ASP.NET, Ajax, SQL Server	Improvement of teaching management and the teaching quality
Nanyang Technological University Final Year Project Portal	University FYP undergraduate students	Web development ASP.NET	The system provides all the guidance and details on FYP to guide undergraduate students to develop their FYP
Web-Based Evaluation System	The approximately	Web development	Implementing a monitoring system of the students'

for Online Courses and Learning Management Systems	200 students of this course together with four instructors and two administrators		learning behavior and a consulting system based on the students' results.
Online Document Management System for Academic Institutes	160 students in the Faculty of University of Malaya	PHP5, JSP and MY SQL programming languages	Provide a collection of coordination pathways and interfaces to remove the problems of document access
System Development of FYP Portal (Registration Module)	Students in Faculty of Information and Communication Technology in Universiti Tunku Abdul Rahman	Visual basic web development, SQLServer	FYP Portal is developed and implemented, all processes that related to FYP should be done through this system

1.5.1 Comment on existing system

All the systems develop using a web application platform in order to be accessed by everyone on different places, and it is much easier to apply evaluation, especially when involves a large number of respondents. Most of the system used ASP.NET to develop the GUI of the system. In my opinion, PHP is the better development programming language as it is open source and can be implemented on most of the platform. From the existing system, it is much more focus on providing guidelines and final report submission. Based on my observed, management module is important in the system as it can help the FYP process more effective and efficiency.

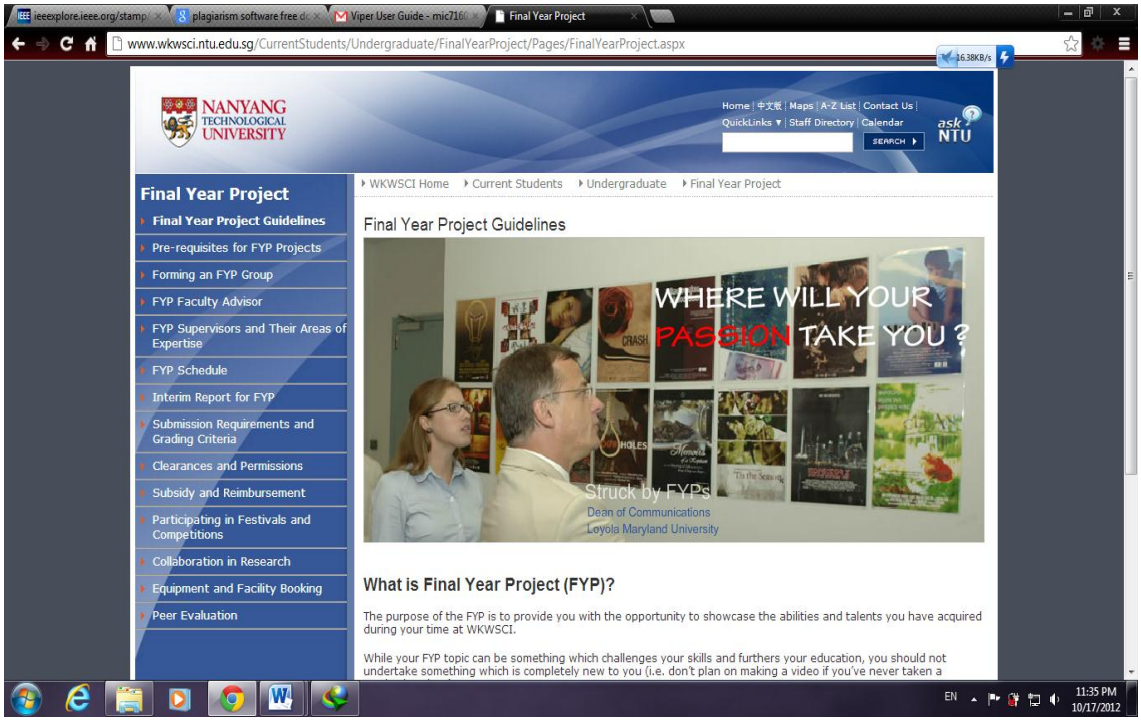

Figure 1.5.1-1 – Nanyang Tecnological University FYP Portal

Figure 1.5.1-2 –Universiti Tunku Abdul Rahman FYP Portal

1.5.2 Development Tools

Based on above explanation, this project will use tools in order to complete this system development. Description of each tool been used during the development are described below:

Table 1.5.2 – Development Tools

Software Tools	Adobe Dreamweaver CS5, Apache HTTP Server
Programming Language	PHP 5.0
Database	MySQL

a) Software Tools

This section will discuss about tools that will be used on develop the proposed system. There are many software tools can be used to develop web-based applications.

1. Adobe Dreamweaver CS5

Adobe Dreamweaver is a proprietary web development application originally created by Macromedia and now developed by Adobe Systems, which acquired Macromedia in 2005. Adobe Dreamweaver is available for both Mac and Windows operating systems. Dreamweaver can use third-party "Extensions" to extend the core functionality to the application, which any web developer can write, mostly on HTML and JavaScript. Dreamweaver is supported by a large community of extension developers who make extensions available for most web development tasks from simple rollover effects to full-featured shopping carts. Dreamweaver, like other HTML editors, edits files locally then uploads them to the remote web server using FTP, SFTP, or WebDAV (Adobe Dreamweaver, 2012).

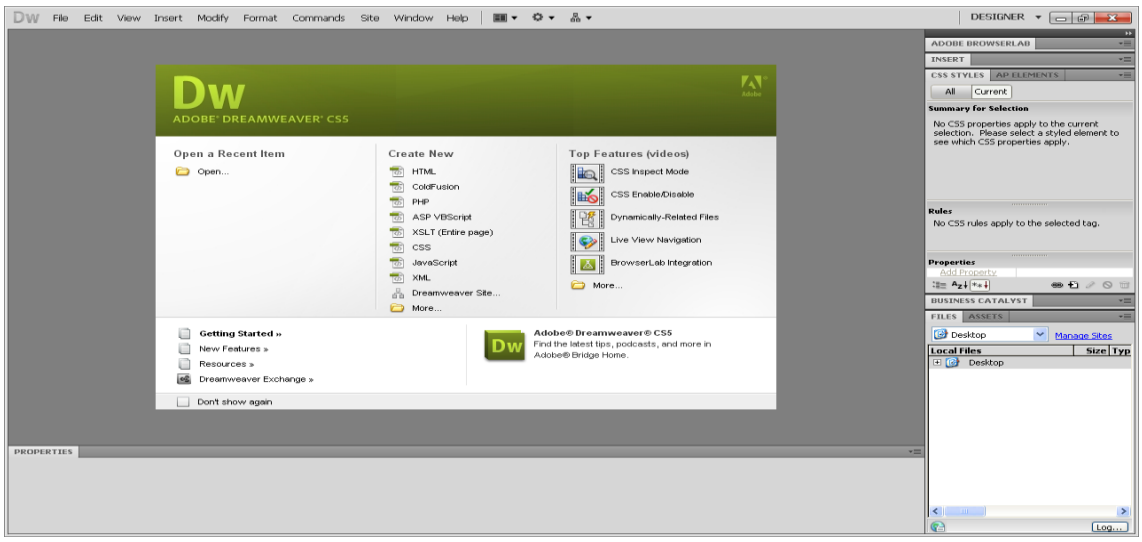

Figure 1.5.2-1 – Interface of Adobe Dreamweaver CS5

2. Microsoft Visio Studio Express 2010

Microsoft Visual Studio Express is a set of freeware integrated development environments developed by Microsoft those are lightweight versions of the Microsoft Visual Studio product line. Visual Web Developer Express is a freeware web development tool, with the role that allows developers to evaluate the web development and editing capabilities of the other Visual Studio editions at no charge. Its main function is to create ASP.NET websites. It has a user friendly, drag-and-drop user interface designer, enhanced HTML and code editors, support for other web technologies such as CSS, JavaScript, XML, and integrated, design-time validation for standards, including XHTML (Microsoft Visual Studio Express, 2012).

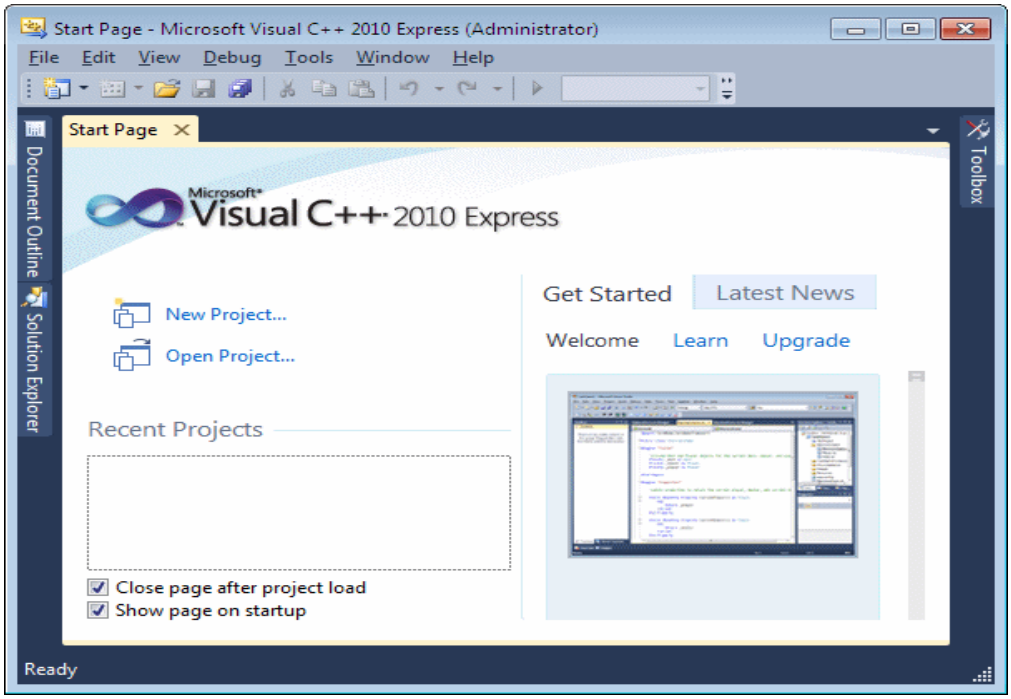

Figure 1.5.2-2– Interface of Microsoft Visual Studio Express 2010

3. Apache HTTP Server

Apache, otherwise known as Apache HTTP Server, is an established standard in the online distribution of website services, which gave the initial boost for the expansion of the World Wide Web. It is an open-source web server platform, which guarantees the online availability of the majority of the websites active today. The server is aimed at serving a great deal of widely popular modern web platforms or operating systems such as Unix, Windows, Linux, Solaris, Novell NetWare, FreeBSD,

Mac OS X, Microsoft Windows, OS/2, etc. Apache supports a variety of features, many implemented as compiled modules, which extend the core functionality. These can range from server-side programming language support to authentication schemes (Apache HTTP Server, 2012).

4. Comparison and Discussion

For the use of software tools, Adobe Dreamweaver is the best choice compare to Microsoft Visual Studio Express to develop the proposed system. It can provide professional tools and use server technology to build powerful web-based applications. Apache HTTP Server is another software tool to use in development.

b) Programming Language

Programming Language is tool used in software development to develop, debug, maintain, and support other applications and programs. The term usually refers to relatively simple programs that can be combined together to accomplish the task, much as one might use multiple hand tools to fix a physical object.

1. PHP 5.0

PHP is a server-side scripting language mostly used in web development runs on web server. PHP code is executed to create dynamic web page content on the website. PHP can be installed or deployed on most web servers, operating systems and platforms, and can integrate with many types of the database management system. PHP is available free of charge, and the PHP Group provides the complete source code for users to build, customize and extend for their own use (PHP, 2012).

Table 1.5.2-1 – Advantages & Disadvantages of PHP 5.0

Advantages	Disadvantages
• It is open source compare to ASP.NET • Easy to use and stable. • Can run on many platforms. • Built in database connection modules	• Not suitable for large applications

2. ASP.NET

ASP.NET is a Web application framework developed and marketed by Microsoft to allow programmers to build dynamic Web sites, Web applications and Web services. ASP.NET Web pages, known officially as Web Forms, are the main building blocks for application development. ASP.NET is a very valuable tool for programmers and developers because it allows them to create dynamic Web sites and rich web applications using compiled languages like C# and Visual Basic (ASP.NET, 2012).

Table 1.5.2-2 – Advantages & Disadvantages of ASP.NET

Advantages	Disadvantages
• Can develop website faster as it provide many beneficial features of the language • Huge collection of rich server and client side control • Built in database connection modules	• Expensive and costly to develop • Too much using of window forms

3. Comparison and discussion

PHP is the most suitable programming language to develop this system compare to ASP.NET. This is because PHP is more flexible in database connectivity. Several databases can connect by PHP which MySQL is the common. There will be no increasing of cost as MySQL is an open source. If using ASP, we need to purchase MS-SQL as it is a Microsoft product. In terms of maintaining the website, loading speed is important factor. PHP codes execute faster than ASP as it runs on own memory space compared to ASP uses an overhead server. Most tools associated with PHP are the open source while additional tools might purchase with using ASP (ASP versus PHP, n.d.).

c) Database

A database is an organized collection of data. The data is typically organized to model relevant aspects of reality in a way that supports processes requiring this information. The term database system implies that the data is managed to some level of quality and this in turn often implies the use of a general-purpose database management system (Database, 2012).

1. MySQL

MySQL is a common, famous choice of database for use in web applications. MySQL is primarily an RDBMS and ships with no GUI tools to administer MySQL databases or manage data contained within the databases. Users may use the included command line tools, or use MySQL "front-ends", desktop software and web applications that create and manage MySQL databases, build database structures, backup data, inspect status, and work with data records. MySQL is an open-source high-performance, multi-threaded, multi-user relational database management system that relies on SQL for processing the data into the database that built around client-server architecture. MySQL is noted specifically for its speed, stability, reliability, and flexibility (MySQL, 2012).

Table 1.5.2-3 – Advantages & Disadvantages of MySQL

Advantages	Disadvantages
• Supports large number of embedded applications which makes MySql very flexible. • Use of Triggers, Stored procedures and views which allows the developer to give a higher productivity. • Allows transactions to be rolled back, commit and crash recovery.	• MySQL does not support a very large database size as efficiently • Transactions are not handled very efficiently.

2. Microsoft SQL Server

Microsoft SQL Server is a relational database management system developed by Microsoft. As a database, it is a software product whose primary function is to store and retrieve data as requested by other software applications, be it those on the same computer or those running on another computer across a network (Microsoft SQL Server, 2012).

Table 1.5.2-4 – Advantages & Disadvantages of Microsoft SQL Server

Advantages	Disadvantages
• Enterprise Grade Management Software • Excellent Data Recovery Support	• Cost of implement • Limited Compatibility

3. Comparison and Discussion

MySQL is the suitable database used to develop the system compared to others. MySQL is an open-source system; it gives remarkable performance with used of very less storage space on the disk and can run on many platforms. (Adam Hobach, 2008).

1.5.3 Current System

Currently, process throughout the undergraduate project is done by manually. PSM/PTA coordinator used this current manual process to manage the subject activities such as proposal submission, assigning presentation schedule, marks calculation, log book submission, etc. The following flowchart will describe the process in completing the undergraduate project.

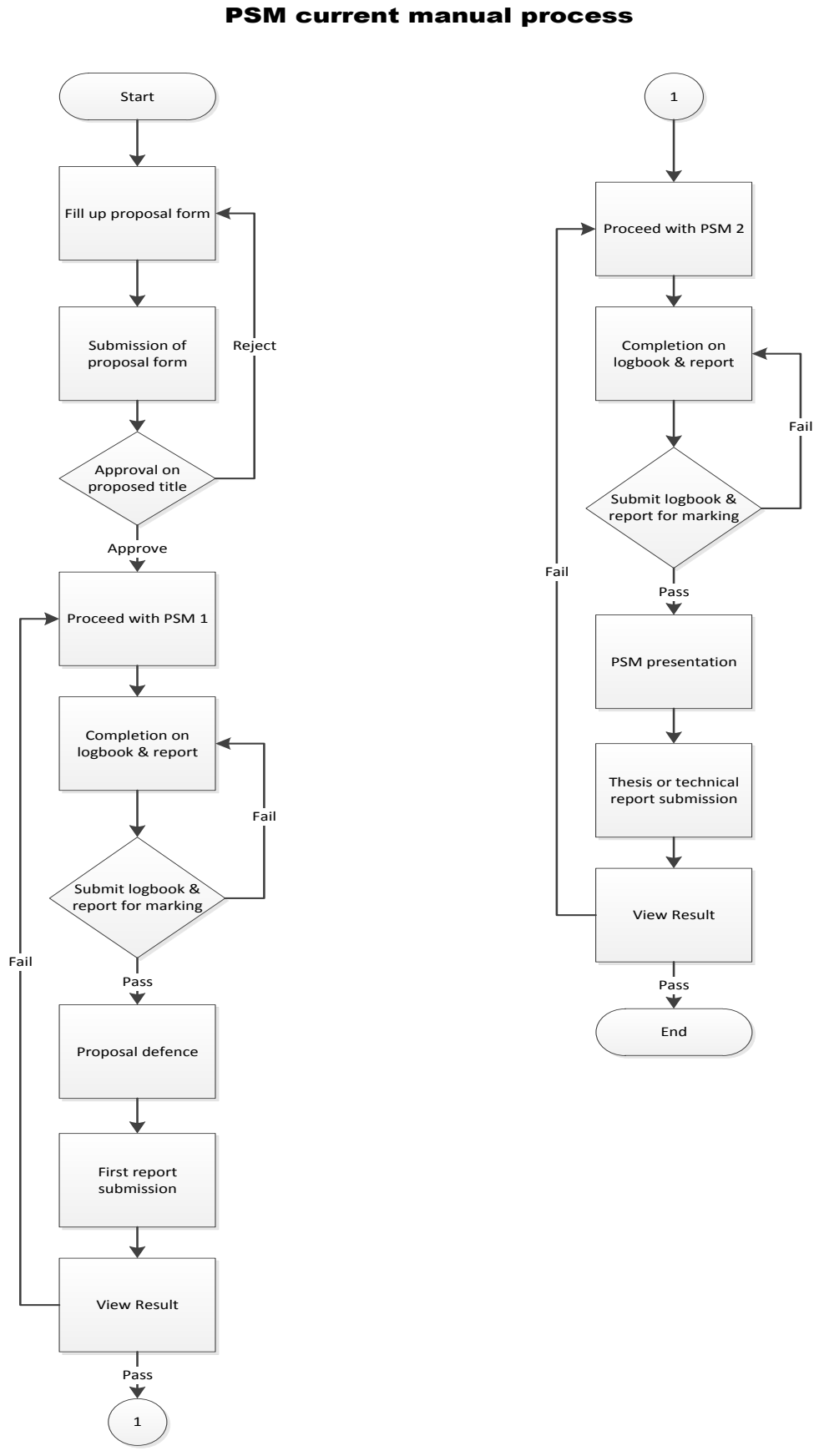

Figure 1.5.3-1 – PSM current manual process flow chart

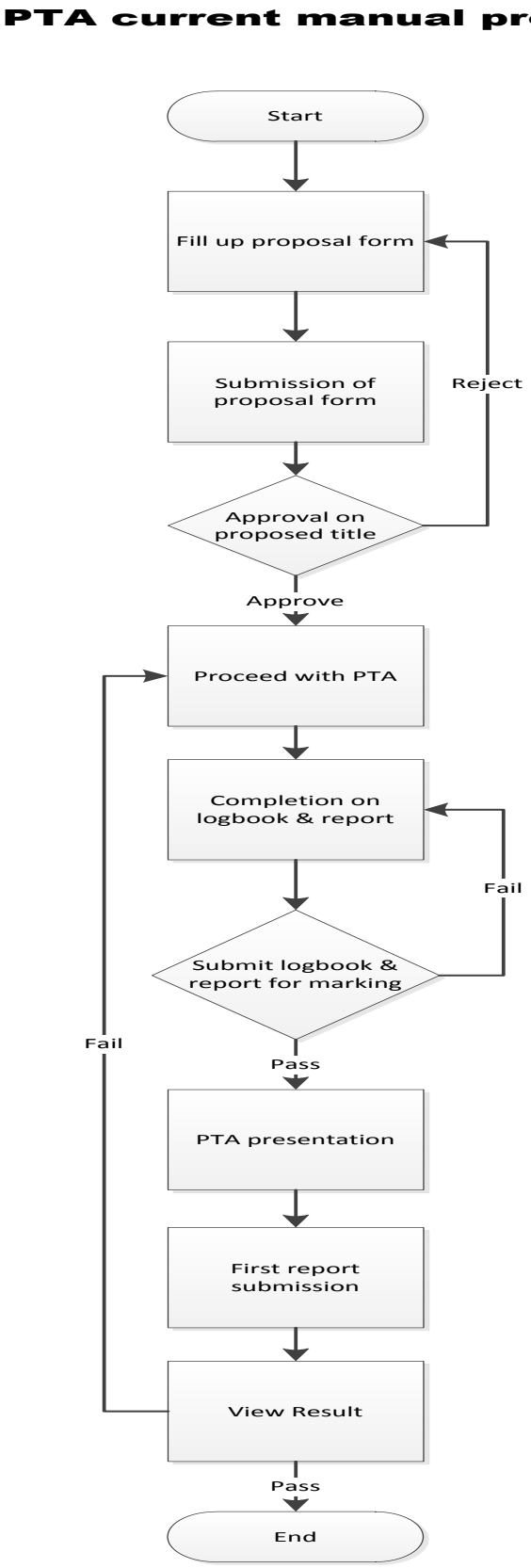

Figure 1.5.3-2 – PTA current manual process flow chart